CLAIMS

What is claimed is:

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1. A method comprising:

partitioning a non-volatile storage media;

storing data in a first partitioned section of the non-volatile storage media;

- 4 and
- storing, in a second partitioned section of the non-volatile storage media,
- 6 metadata corresponding to the data stored in the first partitioned section of the non-7 volatile storage media.
 - 2. The method of claim \$\frac{1}{2}\$, wherein storing the metadata as packed metadata block.
 - 3. The method of claim 1 wherein the partitioning is logical.
 - 4. The method of claim 1, wherein storing cache data in the first partitioned section.
- 1 5. The method of claim 4, further comprising:
- 2 updating the data and metadata atomically when a line of cache data in the
- 3 first partitioned section is changed.
- 1 6. The method of claim 1, further comprising:
- 2 allocating a portion of a mass storage device as the non-volatile storage
- 3 media.

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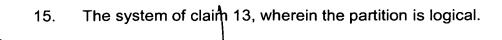
7. A non-volatile memory comprising:

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a first section to store data, and

a second section partitioned from the first section, the second section to store metadata for the data stored in the first section.

- 1 8. The memory of claim 7, wherein the second section is to store the 2 metadata as packed metadata blocks.
- 1 9. The memory of claim 7, wherein the partitioning of the first section 2 and the second section is logical.
- 1 10. The memory of claim 7, wherein the non-volatile memory is a portion 2 of a massive storage device.
 - 11. The memory of claim 10, wherein the mass storage device is one of a disk drive, a Flash memory, a ferroelectric random access memory, or a polymer ferroelectric random access memory.
 - 12. The memory of claim 7, wherein the non-volatile memory is a cache memory.
 - 13. A system comprising:
- 2 a non-volatile storage media having a first section and a second section 3 partitioned from the first section; and
- a memory control hub to cause the first section to store data and the second section to store metadata for the data stored in the first section.
- 1 14. The system of claim 13, wherein second section is to store the 2 metadata as packed metadata blocks.



- The system of claim 15, further comprising a massive storage device 16.
- and wherein a portion of the massive storage device is the non-volatile storage
- 3 media.
- The system of claim 13, wherein the non-volatile storage media is a 1 17.
- 2 cache memory.
- 18. A method comprising: 1
- 2 partitioning a non-volatile storage media;
 - storing cache data in a first partitioned section of the non-volatile storage media;
 - storing metadata corresponding to the cache data in a second partitioned section of the non-volatile storage media; and
 - accessing the second partitioned section to determine the state of the cache data in a system boot.
- 19. The method of claim 18, wherein storing the metadata in the second 2 partitioned section as packed metadata blocks.
- The method of claim 18, wherein the partition is logical. 1 20.
- 21. The method of claim 18, further comprising: 1
- 2 updating the cache data and metadata atomically when a line of cache data
- 3 in the first partitioned section is changed,
- 1 22. A program loaded in a computer readable medium comprising:

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a first group of computer instructions to logically partition a non-volatile storage media;

a second group of computer instructions to store data in a first partitioned section of the non-volatile storage media; and

- 6 a third group of computer instructions to store metadata for the data in a 7 second partitioned section of the non-volatile storage media.
- 23. The program of claim 22, wherein the second group of computer 1 2 instructions include computer instructions to store the metadata as packed 3 metadata blocks.
 - 24. The program of claim 22, wherein the second group of computer instructions include computer instructions to store cache data as the data in the first partitioned section.
 - The program of claim 24, further comprising: 25. computer instructions to update the data and metadata atomically when a line of cache data in the first partitioned section is changed.
 - 26. The program of claim 2\,\frac{1}{4}, further comprising:
- 2 computer instructions to access a line of the second partitioned section to read metadata for the cache data in the first partitioned section. 3
- 1 27. A program loaded in a computer readable medium comprising:
- 2 a first group of computer instructions to logically partition a non-volatile storage media; 3
- 4 a second group of computer instructions to store cache data in a first partitioned section of a non-volatile storage media; 5

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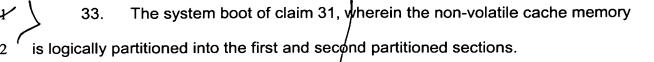
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a third group of computer instructions to store, in a second partitioned section of the non-volatile storage media, metadata corresponding to the cache data stored in the first partitioned section; and

a fourth group of instructions to access the second partitioned section to 9 10 determine the state of the cache data.

- The program of claim 27, wherein the third group of computer 28. instructions includes computer instructions to store the metadata as packed metadata blocks.
- The program of claim 27, further comprising: 29. computer instructions to update the cache data and metadata atomically when a line of cache data in the first partitioned section is changed.
 - 30. The program of claim 27, further comprising: computer instructions to allocate a portion of a mass storage device as the non-volatile storage media.
 - A system boot comprising: 31.
- accessing a first partitioned section of a non-volatile cache memory to read 2 metadata for cache data stored in a second partitioned section of the non-volatile 3 4 cache memory; and
- determining the state of the dache data based upon the read metadata to initialize the non-volatile cache memory for the system boot. 6
- 32. The system boot of claim 31, wherein the metadata is stored in the 1 first partitioned section as packed metadata blocks. 2



- 34. The system boot of claim 3√, further comprising: allocating a portion
- of a mass storage device as the non-volatile cache memory.
- 1 35. The system boot of claim/34, wherein the mass storage device is one
- of a disk drive, a Flash memory, a ferroelectric random access memory, or a
- 3 polymer ferroelectric random access/memory.